

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA725) Current Human Exposures Under Control

Facility Name: Ametek
Facility Address: 900 Clymer Ave., Sellersville, PA 18960
Facility EPA ID #: PAD 002 342 236

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

 X If yes - check here and continue with #2 below.
 If no - re-evaluate existing data, or
 if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **“contaminated”**¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	x			Elevated VOCs have been detected in groundwater.
Air (indoors) ²		x		Depth to groundwater (50-150') and the EPA's air model support that indoor air vapor intrusion is not an issue.
Surface Soil (e.g., <2 ft)		x		Non-detects or low detections of constituents of concern below EPA regulatory standards.
Surface Water		x		Non-detects or low detections of constituents of concern below EPA regulatory standards.
Sediment		x		Non-detects or low detections of constituents of concern below EPA regulatory standards.
Subsurf. Soil (e.g., >2 ft)	x			Slightly elevated TCE and PCE in isolated locations.
Air (outdoors)		x		Air emission controls are in place. No current issues with outdoor air contamination.

_____ If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

 X If yes (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter “IN” status code.

Rationale and Reference(s):

Groundwater:

As part of the RCRA Facility Investigation (RFI) Ametek installed approximately 40 wells throughout the facility's property and sampled several offsite residential and municipal wells to delineate the groundwater plume. Elevated volatile organic compounds (VOCs) above EPA's Maximum Contaminant Levels (MCLs) were detected in several of the wells. Constituents of concern and their range of concentrations are listed below: (*Groundwater Sampling Report 1/2000, Ametek RFI Report 2/1997, Additional Environ. Investigation Activities Report 5/03*)

Constituents	Concentrations (ug/L)	MCLs (ug/L)
Trichloroethylene	3 - 48,000	5
Tetrachloroethene	2 - 6,200	5
1,1 - Dichloroethene (DCE)	ND - 1,600	7
cis - 1,2 -DCE	ND - 23,000	70
Vinyl chloride	ND - 26	2

ND: non-detect

Surface Water:

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Ametek collected several surface water samples from the East Branch/Perkiomen Creek, which is located approximately 1/4 mile north of the facility and in the direction of the groundwater flow. The surface water results indicated low levels for the constituents of concern. (*Ametek RFI Report 2/1997*)

Constituents	Max. Conc. (ug/L)	EPA Fresh Water Stds. (ug/L)
Trichloroethylene	220	350
Tetrachloroethene	0.9	84
1,1 - Dichloroethene	71	303
cis - 1,2 -DCE	93	2000
Vinyl chloride	0.7	--

Sediment:

Ametek collected several sediment samples from the East Branch/Perkiomen Creek. The sediment results indicated low levels of VOCs. (*Ametek RFI Report 2/1997*)

Constituents of Concern	Max. Conc. (ug/kg)
Trichloroethylene	4
1,1-Dichloroethane	110
1,1,1 - Trichloroethane	23
Vinyl chloride	5

Surface Soil:

Ametek collected several surface soil samples and placed numerous gore-sorber capsules throughout the facility to determine the degree of VOCs in surface soil. The surface soil concentrations are below EPA Region III Risk Based Concentrations (RBCs) for industrial use. (*Ametek RFI Report 2/1997*)

Constituents of Concern	Max. Conc. (mg/kg)	EPA RBCs (mg/kg)
Trichloroethylene	1.3	14
Tetrachloroethene	0.5	110
1,2-Dichloroethene	1.0	18,000
1,1-Dichloroethane	0.2	200,000
1,1,1-Trichloroethane	0.3	570,000
Chlorobenzene	1.0	41,000
Toluene	3.4	410,000
Xylene (total)	1.2	4,100,000

Subsurface Soil:

As part of the closure of the two former lagoons, Ametek excavated contaminated soil and disposed the soil offsite. In addition, Ametek drilled and analyzed several soil borings throughout the facility property for VOCs, semi-volatiles and inorganic compounds. Inorganic compound results were within literature background concentrations for the region. Semi-volatile organic concentrations are in the range of 0.05-3.6 mg/kg. Trichloroethylene and tetrachloroethene levels in subsurface soil are slightly above the Pennsylvania Department of Environmental Protection (PADEP) Soil to Groundwater standards. Listed below are maximum concentrations for VOCs of concern in subsurface soil. (*Ametek RFI Report 2/1997*)

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Constituents of Concern	Max. Conc. (mg/kg)	PADEP Soil to Groundwater (mg/kg)
Trichloroethylene	18	0.5
Tetrachloroethene	60	0.5
1,2-Dichloroethene	2.1	7
1,1-Dichloroethane	0.32	2.7
1,1,1-Trichloroethane	4.5	20
Ethylbenzene	14	46
Toluene	37	100
Xylene (total)	86	1,000

Air (indoors):

A portion of the groundwater plume has migrated offsite and is located beneath several residential dwellings. Given the depth to groundwater is approximately 100 feet, the geological characteristics of the subsurface, and the VOC concentrations in groundwater are between 1.0 - 100.0 ppb, indoor vapor intrusion as a result of the VOC groundwater plume is negligible. This conclusion is supported by the EPA Johnson and Ettinger Vapor Intrusion Model. (*Ametek RFI Report 2/1997, Groundwater Sampling Report 1/2000*)

Air (outdoors):

Ametek currently operates under the PADEP Title V Operating Permit, which monitor air quality and emissions. The facility is in compliance with the requirements of the permit. (*PADEP Annual Air Quality Reports*)

Footnotes:

¹ “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

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3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

<u>“Contaminated” Media</u>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	NO	NO	NO	NO			NO
Air (indoors)	—	—	—				
Soil (surface, e.g., ≤2 ft)	—	—	—	—	—	—	—
Surface Water	—	—			—	—	—
Sediment	—	—			—	—	—
Soil (subsurface e.g., >2 ft)				NO			NO
Air (outdoors)	—	—	—	—	—		

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated” as identified in #2 above.
2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“___”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

 X If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ If yes (pathways are complete for any “Contaminated” Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code.

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

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Rationale and Reference

Groundwater:

The Facility conducted a groundwater well survey within a mile radius of the plant. Residential and municipal wells within the survey area were sampled for the constituents of concern. Wells that were impacted by the groundwater contamination from Ametek were either connected to public water or an onsite system was installed to treat the groundwater. Wells that are not impacted by Ametek and are within the areas of concern will continue to be monitored on a semi-annual basis. By addressing all possible residential and municipal wells within the area, human exposures to contaminated groundwater is eliminated. (*Ametek RFI Report 2/1997, Groundwater Sampling Report 1/2000*)

Subsurface soil:

Isolated locations where contaminated subsurface soils exist are beneath manufacturing buildings or paved areas. Essentially, these buildings and paved areas act as a protective cap and therefore, direct human exposures to contaminated subsurface soil are eliminated. (*Ametek RFI Report 2/1997*)

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4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

_____ If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If unknown (for any complete pathway) - skip to #6 and enter “IN” status code

Rationale and Reference(s):

⁴ If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

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5. Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be “unacceptable”)- continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.

_____ If unknown (for any potentially “unacceptable” exposure) - continue and enter “IN” status code

Rationale and Reference(s):

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6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

 X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **Ametek** facility, EPA ID # **PAD 002 342 236**, located at **900 Clymer Ave., Sellersville, PA 18960** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

 NO - "Current Human Exposures" are NOT "Under Control."

 IN - More information is needed to make a determination.

Completed by (signature) _____ /s/ _____ Date 5/9/03
 (print) Khai M. Dao
 (title) RCRA Project Manager

Supervisor (signature) _____ /s/ _____ Date 5/9/03
 (print) Paul Gotthold
 (title) Branch Chief, RCRA Corrective
 Action, PA Operations
 (EPA Region or State) Region 3

Locations where References may be found:

US EPA
Region III
Waste and Chemical Mgmt. Division
1650 Arch Street
Philadelphia, PA 19103

Contact telephone and e-mail numbers:

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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

